

Degree one cohomology for the lie algebras of derivations

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Abstract

Let R be a commutative ring and W a Lie algebra of its derivations which is an R -submodule in the full derivation algebra $\text{Der } R$. We consider a class of W -modules generalizing the natural representations of the Lie algebras of vector fields in tensor fields of arbitrary type. The main result consists in the determination of the cohomology of those modules in degree 1. Its applications include a description of derivations and the universal central extension for the Lie algebra W .
